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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/620,968

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Shunpei Yamazaki

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4214

22204

7590

10/28/2005

NIXON PEABODY, LLP  
401 9TH STREET, NW  
SUITE 900  
WASHINGTON, DC 20004-2128

EXAMINER

HA, NATHAN W

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/620,968

Applicant(s)

YAMAZAKI, SHUNPEI

Examiner

Nathan W. Ha

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                            |                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/02</u> . | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The previous 112 rejection has been withdrawn.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-3, 6, 9-10, 12-13, 15-17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cunningham et al. (US 3,833,842, previously cited, hereinafter, Cunningham) and in view of Mori et al. (US 5,243,202, previously cited, hereinafter, Mori.)

In regard to claims 2, 9, 12, 16, and 19, in fig.12, Cunningham discloses a method of making a semiconductor device comprising steps of:

forming an insulating layer 119 comprising silicon nitride over a semiconductor substrate 70 by sputtering in an atmosphere consisting of nitrogen; see col. 12, lines 5-12. Cunningham does not expressly disclose that the amount of nitrogen is 75% volume or more.

Mori, in fig. 7, discloses an analogous semiconductor device including the silicon nitride comprising nitrogen at 75% or more in order to have a film that has high break down voltage (col. 30, lines 5-25.)

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention was made to use a high volume of Nitrogen as taught by Mori in order to improve the break down voltage of the film.

In regard to claims 3, 6, 10, 13, 17, and 20, the above-mentioned references teach the layer is made by using RF sputtering. See [0074], for example.

In regard to claims 9 and 12, Cunningham further discloses the use of Aluminum electrodes; see col. 2, lines 34-38.

4. Claims 4, 7, 11, 14, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cunningham and Mori's as applied to claims 2-3, 5-6, 8, 15-17, 19-20, and 22 above, and further in view of Nomoto et al. (US 5,225,364, previously hereinafter Nomoto.)

In regard to claims 4, 7, 11, 14, 18 and 21 Cunningham discloses all of the claimed limitations as mentioned above except expressly teaches the device can be used in a matrix display. It is noted that the device of Cunningham in fact can be used in a matrix display device since it is a metallization device. It is used to carry out signal or power connection. However, in order to show the obviousness of this utility, Nomoto is incorporated herein. Nomoto discloses an analogous semiconductor device with substrate 1, silicon nitride insulating layer 5 and an aluminum electrode 8. The matrix has plurality devices that connect in rows and columns. Therefore, it is proper to

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combine this structure to a metallization structure in order to carry out the intended product, or design choice of a product.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to adapt matrix device as taught by Nomoto in Cunningham's in order to carry out the advantage mentioned above.

5. Claims 5, 8, 15, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cunningham and Mori as applied to claims 2-3, 6, 9-10, 12-13, 15-17, and 19-20 above, and further in view of Yamazaki et al. (US 6,586,346, previously cited, herein, Yamazaki.)

In regard to claim 5, 8, 15, and 22, the above combination discloses all of the claimed limitations except the volumes of argon and halogen. Yamazaki discloses an analogous process and further includes the volumes of the argon and halogen as claimed in claims 5, 8, 15, and 22 in order to prevent fixed electric charges from being generated in the film (see the abstract.)

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use appropriate volumes of the argon and halogen materials in order to prevent fixed electric charges from being generated in the film.

### ***Response to Arguments***

6. Applicant's arguments filed 8/17/05 have been fully considered but they are not persuasive. For instance, applicant submits that Mori does not teach the sputtering method. The applicant's arguments against the references individually, one cannot

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show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this case, Mori was used to incorporate with Cunningham to show the volume of nitrogen of at least 75%. This feature is stated in Mori's col. 30, lines 5-20, wherein the gas flow rates are shown, for example, nitrogen is 12.3.

### ***Conclusion***

**7. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Nathan Ha  
October 25, 2005



HOAI PHAM  
PRIMARY EXAMINER